

TWO NEW SPECIES OF WATER BEETLES
FROM FLORIDA
(COLEOPTERA: DYTISCIDAE)*

BY FRANK N. YOUNG

The two new species of Dytiscidae described below were encountered during the course of the writer's investigations of the species comprising the genera represented in the Florida fauna.

The new *Hydrovatus* is remarkable in that it is apparently confined to the peninsular region of Florida and may represent an endemic form originally isolated on the Pleistocene Islands. Examination of the type of *Hydrovatus indianensis* Blatchley convinces me that it is not that species although the two are similar. The occurrence of "giant" forms within the limits of the populations of *H. pustulatus* Melsheimer and *compressus* Sharp respectively suggests the possibility that they may represent mutant or even polyploid species.

The new *Copelatus* has stood on our lists for many years as *C. debilis* Sharp, but a comparison of Blatchley's specimens with true *debilis* indicates that the two are distinct. The form is probably not restricted to the Florida Keys, unless those islands represent the remnants of a land mass more ancient than we now suspect.

***Hydrovatus peninsularis* sp. nov.**

DIAGNOSIS: A moderately large, dark colored *Hydrovatus* resembling in general *H. indianensis* Blatchley, but differing from that species in color pattern and in punctuation. From *H. major* Sharp or *horni* Crotch it differs in lacking conspicuous sulci on the sides of the elytra. From *H. pustulatus* Melsheimer and *compressus* Sharp it differs in its

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larger size, different coloration, and in the structure of the male genitalia. Total length ranges from 2.9 to 3.1 mm.; greatest width from about 1.9 to 2.1 mm. Average size based on measurements of eight specimens about 2.98 by 1.96 mm. *H. compressus*, the only species so far taken in company with *peninsularis*, averages about 2.31 by 1.58 mm. *Peninsularis* may represent a form of *indianensis*, but that species is still so rare in collections that I have had no material available for comparison except the unique female type.

HOLOTYPE MALE: Form broadly oval, nearly hemispherical. Outline of body when viewed from above broadest at base of elytra, not much narrowed anteriorly, but narrowing posteriorly from the humeri with a slight sinuation near the middle of the elytra beyond which the elytra narrow again to the acuminate tips. Strongly convex above and below. Total length 2.92 mm.; greatest width 1.98 mm. Width at base of pronotum 1.81 mm.; width at apex of pronotum 1.13 mm.; length of pronotum at midline 0.76 mm. Length from base of prosternal process to apex of coxal lamina 1.43 mm. Width between eyes 0.73 mm. *Head:* Microreticulate with some irregularly spaced, moderately fine punctures. (Coarser punctures along inner margin of eyes and on front in usual position for genus.) Clypeus inconspicuously margined. Microsculpture of vertex with meshes regular and rather deeply impressed. *Pronotum:* Microsculpture much as on head. Punctuation much coarser than on head, coarse and dense along anterior and posterior margins but somewhat finer and sparser on disk and toward sides. Punctures at apex and base of pronotum with some tendency to coalesce to form vermiculate sculpture. *Elytra:* Microsculpture less deeply impressed than on either the head or the pronotum (surface appearing more strongly polished). Punctuation coarser than on pronotum and arranged in roughly regular rows or striae running from base toward apex. (Three striae of hair bearing punctures vaguely discernible on each elytron). Apices and lateral margins of elytra less densely and more finely punctate than disk. A number of coarse punctures extending posteriorly from the humerus of each elytron

apparently occupy the same position as the sulcus seen in *major* and *horni*. Below these punctures there is a vague longitudinal ridge above the epipleura. *Venter*: Metasternum slightly more coarsely and irregularly punctate than the elytra. Hind coxal plates with very large punctures separated from one another by less than their own diameter and in part confluent (punctures much coarser than those of elytra; about as coarse as those of elytra in *indianensis*). Two basal abdominal sternites with a few coarse punctures; other sternites with microsculpture but not conspicuously punctate (two basal abdominal sternites very coarsely and confluent punctate in *indianensis*). Terminal abdominal sternite mucronate but without a median ridge (with a blunt projecting ridge and not strongly pointed in the female type of *indianensis*). Epipleurae with some coarse, irregularly spaced punctures. *Anterior* and *middle tarsi*: Moderately strongly dilated. Anterior protarsal claw slightly broader and blunter than its fellow. *Genitalia*: Similar to those of *compressus* and *pustulatus*, but with the parameres more evenly rounded at the tips, and with the aedeagus with the constricted apical portion relatively longer, stouter, and less strongly curved down at the tip. *Color*: Head nearly uniformly reddish brown. Pronotum with disk dark reddish brown and the lateral margins lighter; base and apex somewhat darker, but no lighter cross-bar between them as in *indianensis*. Elytra dark reddish brown, each with a transverse sub-basal yellowish brown spot which reaches the lighter margin at the side but does not attain the suture, a postmedian yellowish brown spot, and the apices yellowish brown. Venter reddish brown with the metasternum and hind coxal plates darker. Color pattern similar to that of *indianensis* but differing in the narrower sub-basal spot and the larger postmedian spot, as well as in the lack of a light cross-bar on the pronotum.

ALLOTYPE FEMALE: Similar to the male but somewhat more regularly oval, somewhat darker in general color, the elytra less polished and with the anterior and middle tarsi less strongly expanded. Total length 2.93 mm.; greatest width 1.97 mm. Width at base of pronotum 1.62 mm.;

width at apex of pronotum 1.16 mm.; length of pronotum at midline 0.76 mm. Length from base of prosternum to apex of coxal lamina 1.48 mm. Width between eyes 0.78 mm.

VARIATION: Paratypes differ somewhat from the types in coloration and in the coarseness of punctation. The punctation of the pronotum in some is coarser, in others finer than in the types.

TYPE LOCALITY: Holotype and allotype from: FLORIDA: Alachua County, Lake Newman east of Gainesville, Sept. 27, 1939 F. N. Young. Paratypes from: FLORIDA: Alachua County, Bivan's Arm of Payne Prairie south of Gainesville, Feb. 1939 F. N. Young (4 ♀); Lake Wauberg near Micanopy, Apr. 30, 1938, F. N. Young (1 ♀); Polk County, Saddle Creek Canal, 1 mi. north of Bartow, Nov. 1, 1951 Ellis Lanquist (1 ♂); and Brighton (Okeechobee), June 16, 1929, P. J. Darlington Jr. (10 exs.).

LOCATION OF TYPES: Holotype, allotype and two female paratypes are in the University of Michigan, Museum of Zoology, Ann Arbor. One male paratype is in the collection of Ellis Lanquist at the Department of Biology, University of Florida, Gainesville. One female paratype is in the collection of H. B. Leech at the California Academy of Sciences, and another in the W. S. Blatchley collection at Purdue University, Lafayette, Indiana. The Brighton paratypes are in the Museum of Comparative Zoology (Type No. 29,018), Cambridge, Massachusetts.

Copelatus blatchleyi sp. nov.

1919 *Copelatus debilis* Blatchley, not of Sharp, Bull. Amer. Mus. Nat. History, 41 (4):312.

1932 *Copelatus debilis* Blatchley, not of Sharp, "In Days Agone . . .," Nature Publishing Co., Indianapolis, p. 293.

The *Copelatus* recorded by Blatchley from Florida (see above) represents a species resembling, but very distinct from *debilis* Sharp as represented by specimens from Texas, Mexico, and Central America. Blatchley (1932) states that his specimens were sifted from among dead leaves about 200 yards from tidal pools near the cemetery at Key West. He surmises that the species may be a

brackish water form, but from the situation cited *blatchleyi* will more likely be found associated with the ephemeral rain pools which form in the broadleaved evergreen jungle hammock associates of the Keys. It will probably also be found in the West Indies.

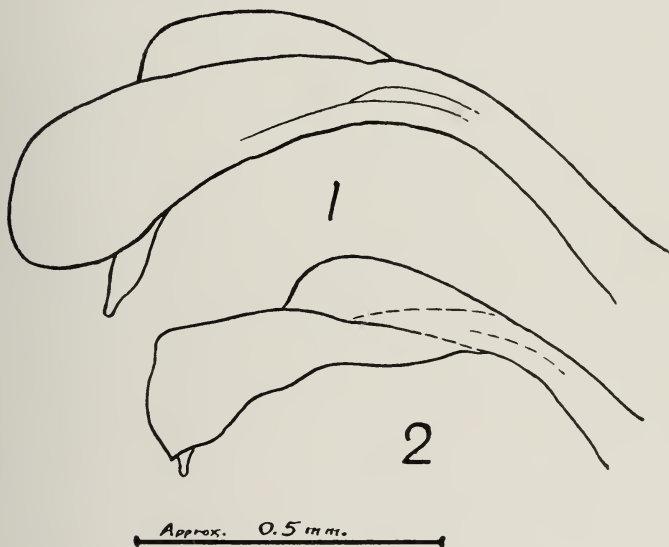


Fig. 1. Lateral outline of aedeagus of holotype of *Copelatus blatchleyi* from Key West, Florida. Fig. 2. Lateral outline of aedeagus of *Copelatus debilis* from Brownsville, Texas. (Both figures drawn to same scale)

Copelatus cubaensis Schaeffer (Jour. New York Ent. Soc., 16: 18, 1908) seems from the description to be very similar to *blatchleyi*, but is described as having a submarginal and six other striae on each elytron. A comparison of the male genitalia should help to determine the relationships of several forms which we now place in different groups almost entirely on the number of striae on the elytra. The genitalia of *debilis* and *blatchleyi* are of a similar type radically different from those of *glyphicus* or *chevrolati*. *C. chevrolati*, the only other *Copelatus* so far taken at Key West, is easily distinguished from *blatchleyi*

by having a submarginal and eight other striae on each elytron.

DIAGNOSIS: A small, ovate, moderately convex *Copelatus* with a distinct submarginal and five other distinct striae on each elytron (Sharp's Group 9). The structure of the male aedeagus is diagnostic (Fig. 1) and indicates the relationship of the species to *debilis* Sharp (Fig. 2). The latter, however, is smaller, more elongate, less convex, less coarsely punctate, and the aedeagus differs in structure. Average length 4.63 mm.; average width at middle of elytra 2.43 mm.

HOLOTYPE MALE: Elongate oval, greatest width at about middle of elytra, moderately convex dorsally. Total length 4.73 mm.; greatest width 2.43 mm. Width at base of pronotum 2.19 mm.; width at apex of pronotum 1.30 mm.; length of pronotum at midline 0.86 mm. Length of prosternal process 0.76 mm.; length from apex of prosternal process to apex of coxal laminae 1.57 mm. Width between eyes 0.78 mm. *Head:* Microreticulate and moderately finely punctate, punctures on vertex separated by from 2 to 3 times their diameter (coarser punctures in usual position for genus). *Pronotum:* Microreticulation and punctation on disk about as on head; coarser punctures along anterior margin, laterally, and in two depressions near the base on either side of middle. *Elytra:* Microreticulation coarser and more irregular than on head and pronotum; punctures along suture and between the impressed striae coarser and denser than on head or pronotum. Each elytron with a submarginal and five other distinct, deeply impressed striae: no sutural stria; first discal stria about twice as distant from the suture as from the second stria; first and second striae a little shorter at base than outer three; second and fifth striae somewhat abbreviated toward the apex (the fifth showing a tendency to turn inward and almost join the fourth toward the apex); submarginal stria originating just before middle of elytra and extending a little beyond termination of the 5th discal stria. *Venter:* Metasternum, coxal plates, and abdominal sternites microreticulate and with some parallel scratches, but not conspicuously punctate in any part. Prosternal process similar to that of

debilis, but relatively stouter and more expanded behind the anterior coxae. *Anterior* and *middle tarsi* moderately dilated; protarsal claws simple. *Anterior tibiae* constricted at base as in *debilis*. *Genitalia*: Parameres similar to those of *debilis*. Aedeagus distinctive (see Fig. 1). *Color*: Head reddish brown, eyes dark. Pronotum dark reddish brown to fuscous on disk, lighter yellowish brown at anterior angles and along margins. Elytra very dark reddish brown to fuscous with a narrow, transverse yellowish brown area at base not quite reaching the suture; margins and apices diffusely lighter. Appendages and undersurface nearly uniformly reddish brown, a little darker along sutures and on abdominal sternites.

ALLOTYPE FEMALE: Similar to male except that specimen is teneral and almost uniformly light yellowish brown above and below. The specimen is in poor condition, but the structural characters are distinct. The anterior and middle tibiae and tarsi are simple. Total length 4.59 mm.; greatest width 2.40 mm. Width of pronotum at base 2.11 mm.; width of pronotum at apex 1.24 mm.; length of pronotum at midline 0.81 mm. Length of prosternal process 0.70 mm.; length from apex of prosternal process to apex of coxal laminae 1.51 mm. Width between eyes 0.78 mm.

VARIATION: The series of specimens before me is relatively uniform. Both of the females are teneral and lighter in color, but do not seem to differ significantly otherwise. The largest male measures 4.75 by 2.54 mm.; smallest female 4.56 by 2.38 mm.

TYPE LOCALITY: Holotype, allotype, two male and one female paratypes, all from FLORIDA: Monroe County, Key West, Mar. 3, 1919, W. S. Blatchley. (These apparently represent all but four of the specimens collected by Blatchley and recorded by him as *debilis*.)

LOCATION OF TYPES: Holotype and allotype in the W. S. Blatchley Collection at Purdue University. One male and one female paratype in the University of Michigan Museum of Zoology, Ann Arbor, Michigan. One male paratype in the Museum of Comparative Zoology (Type No. 29,019), Cambridge, Massachusetts.